Gas Journal

VOL. 300 111th YEAR LONDON, NOVEMBER 4, 1959 No. 5018 PRICE 1/6

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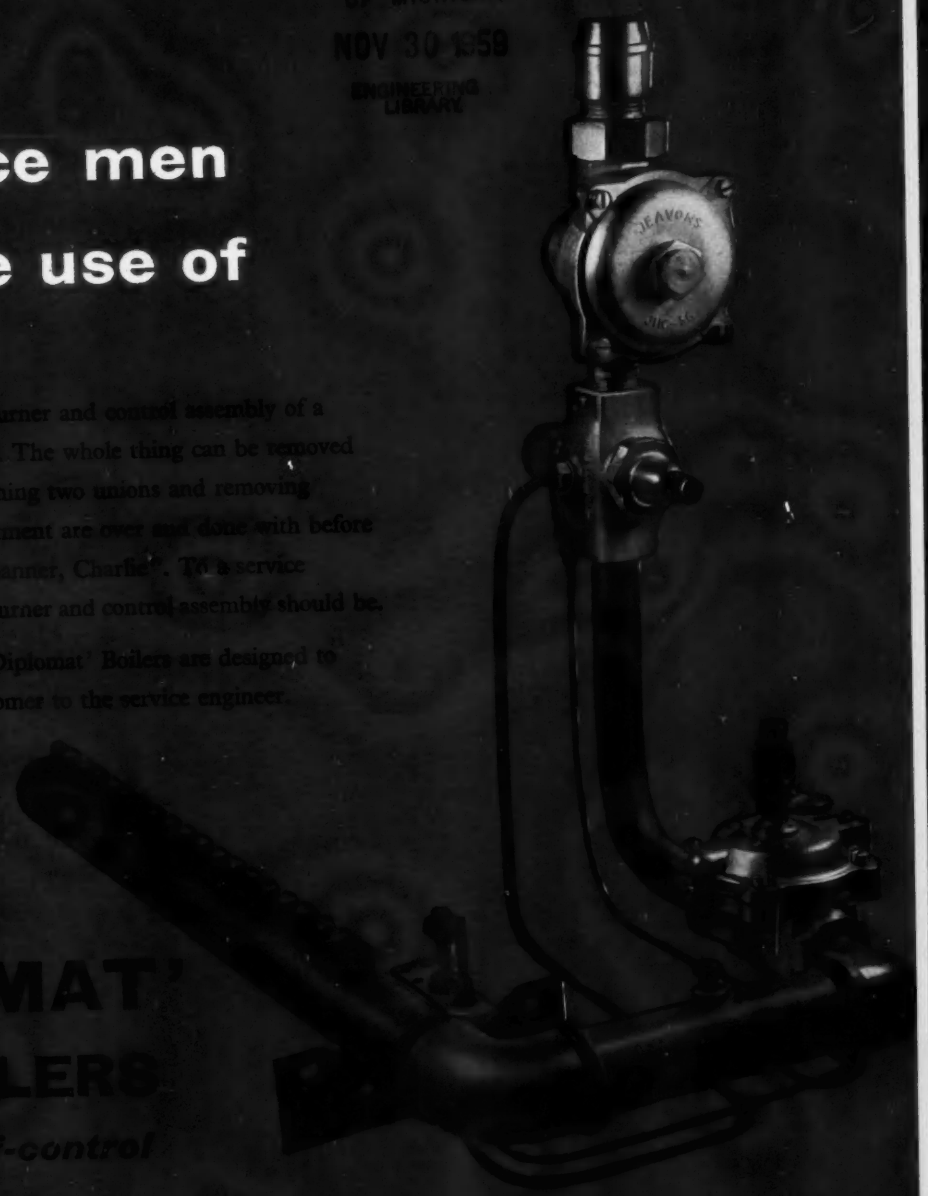

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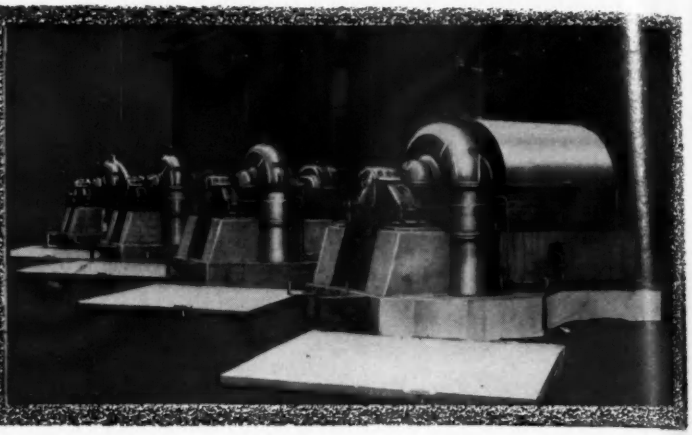
progress with Donkin Gas Boosters

Type O.L.P. 56

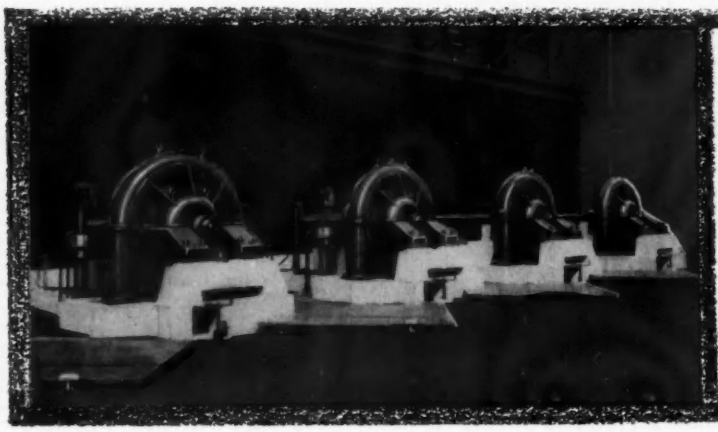
Four Donkin Type OLP.56 Gas Boosters recently installed at the Old Kent Road Works of the South Eastern Gas Board



Two of the boosters are driven by 300 H.P. L.D.C. Nevelin "Varionic" speed controlled Motors, through speed increasing gears, and two by 'Ruston Paxman' 8 cylinder Oil Engines through speed increasing gears and centrifugal clutches.

The duty of each machine is 350,000/500,000 cu. ft./hr. against a pressure of 1 to 5 p.s.i.g.

The Boosters incorporate weatherproof features for operation in the open air.



Type V.H.P. 180

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Gas Journal

VOL. 300 No. 5018 NOVEMBER 4, 1959

IIITH YEAR

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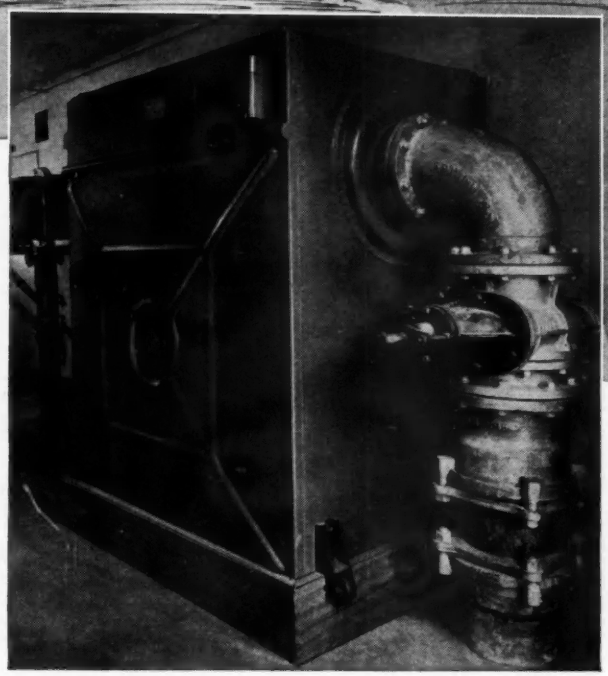

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Gas Journal

VOLUME 300 No. 5018 NOVEMBER 4, 1959 111th YEAR

A Straight Talk on Appliance Sales

THE time has come for some hard thinking and straight talking about the gas industry's future domestic load. It is an extraordinarily alarming thing that even now, when oil and electricity are seriously distorting the industry's traditional pattern of sales, one can hear the same old platitudinous and often hypocritical outpourings that flowed during the association and sales meetings of 30 years ago. Much of it was treacly then; today it is so viscous that one imagines its spokesmen as sealed off from the surrounding world of reality by their own glutinous, soporific, anaesthetising flood of wishful thinking and make-believe. But, gradually, those voices are being silenced by others, voices of the few who can visualise the place of gas in a rapidly evolving competitive world, and voices of the many who, recognising that values and standards are changing, are asking for guidance and encouragement. There is not much of that commodity about. Not only is there uncertainty about marketing methods and the machinery of selling, there is a great deal of uncertainty about what appliances and services we should sell. And you cannot plan your sales approach until you are sure of your commodity. To what extent should the gas industry remain a two-fuel industry and how quickly can it afford to change over to selling gas alone? How soon will there be 'clean' gas? What is the future of the cooker load and what proportion of our effort should be put into maintaining it? To what extent is it wise to use electricity on our appliances? Should we go all-out for instantaneous or storage water heating? If we accept the fact that space heating business should provide our future salvation, how can this load be built quickly and surely? These, we suggest, are basic questions to which the industry must find an answer.

Fortunately, although there is a good deal of disagreement concerning these matters, a few clear-cut and imaginative views are being expressed and it is from a fusion of these that a policy must be fashioned. Discussion is both healthy and necessary, but don't let us wait too long.

It was to be hoped that the Harrogate conference would supply at least some of the answers to the questions now facing the industry, but as we said three weeks ago, little of real value emerged from the confused cross currents of thought, except perhaps some of Mr. H. R. Hart's ideas on marketing. Last week, however, the London and Southern Section of the I.G.E. heard a paper which, in our view at any rate, deserves its place in any compilation of responsible comment. It has three claims to attention: It is honest to the point of bluntness; it is concise and mercifully free from the extraneous trappings of only partially relevant graphs and tables without which few speakers on the subject seem able to approach their audience; and it stems from a man whose experience and integrity automatically renders his opinion worthy of consideration. 'Selling Domestic Gas Appliances' was presented by Mr. S. A. King, who is known to us today as Sales Manager of R. & A. Main Ltd., but who we perversely continue to associate with the Eastern Gas Board, whose Commercial Manager he was, and more particularly with the Tottenham Division in which part of the world he 'came up the hard way.' Mr. King is therefore in the—surely unique?—position of viewing the industry's prospects from both sides of the fence, from the viewpoint of a gas board commercial manager and an executive in a respected firm of manufacturers. (Why is it, by the way, that gas boards seem to lose many of their best men to the manufacturers without ever taking any of the manufacturers' best men in exchange? Yes, we suppose the reason *is* pretty obvious.)

Mr. King's observations may be read in detail on another page. In these comments we intend only to summarise certain of his conclusions and add a comment here and there. He deals first with cookers, sales of which he expects to decline progressively, although they may yield worthwhile business for many years to come. In order to retain the load as long as possible he advocates the marketing of cookers of three main types—'a good wholesome cooker with no frills and fancies' to sell at £25-30, a 'typical' cooker at about £40, and a de luxe model. Of the last variety he warns against 'gymnastics in design' and going out of our way to produce appliances which 'demonstrate to the un-

biased marked competitive weaknesses.' (Why only to the unbiased?) Here Mr. King is going to cross swords with a school of thought which believes we should abandon cheap cookers, cultivate gimmicks and continue the trend towards more expensive models. A recent editorial in *Gas Service*, while endorsing the wisdom of trying to sell more costly cookers, stressed the importance of remembering those who are unwilling or unable to pay more than the minimum price. These sentiments, although criticised during one of the discussions at Harrogate, received considerable support, and in fact the November issue will contain readers' letters which strengthen the case for at least one cooker to be available at the lowest possible price consistent with good quality and design. It matters little which side is right; what *does* matter is that the industry as a whole should correctly interpret the customers' needs.

In his comments on water heating, too, Mr. King is likely to meet opposition. His assertion that the instantaneous system has the bigger potential will conflict with the growing body of storage enthusiasts, but we imagine few would seriously quibble with his view that the home laundry market offers little hope for the gas industry, while carefully planned production and distribution leading to lowered costs should ensure that gas gets a useful share of the rapidly expanding refrigerator market. Mr. King shares the generally held opinion that space heating may one day be the cornerstone of the domestic load, but he cautions the industry not to 'persist too long in pressing the case unduly of those particular types of appliances, and I have the washing machine and auto-cooker in mind here, which to fair judgment are second best, lest in the process we sow doubt in the minds of potential customers about the strength of our case where indeed we are really strong.' Wise words!

The paper closes with a reference to distribution in general and dealers in particular. Mr. King's principal concern is with space heating appliances and their installation in new and renovated property. In view of the fact that 'builders' merchants, jobbing builders and plumbers have long since ceased to have any serious interest in gas,' what chances have these heaters in competition with those using solid fuel or electricity? Mr. King suggests that the solution to the problem may lie in utilising the many firms who make and sell fireplaces. He doubts whether any fireplace showroom in the country has on display a gas heater in an appropriate setting—a disturbing thought! Making the fireplace trade dealers in this speciality of gas space heating would certainly go a long way towards broadening the sales outlets for this type of appliance. And so would the adoption of hollow brick ventilation instead of the traditional chimney breast in house building, thus saving both money and space. As Mr. King points out, encouraging architects to design for gas in the first instance is a much bigger and better story than that of bedroom heating which was successfully sold by the industry between the wars. While we endorse the wisdom of making a full-scale approach to the architectural profession, some detailed ideas on how this could best be done would be worth having. Can it be denied that, in spite of all its efforts, the gas industry has barely scratched the surface of this problem? Perhaps the most effective method employed so far has been the gas supplements to one of the leading architectural journals, which have presented the information in a manner likely to impress and inform its somewhat critical readers; perhaps something further could be done along these lines, concentrating on new methods of space heating by gas. And we must add a word of praise for the permanent and temporary house heating exhibitions which are springing up in gas boards' areas; a great deal of this kind of activity will be needed before architects generally are prepared to give gas a try.

As we said at the outset, this is a paper which deserves serious consideration. In many ways it is a pity that it did not produce a fuller and more constructive discussion.

A Government Department?

IS there any change about to be made in the relationship between Parliament and the nationalised industries? Will members in future be able to ask questions on the day-to-day working of these industries as they are now able to do about the affairs of the Post Office? At present if an M.P. receives a complaint from a constituent about a nationalised industry, he must pass it on to the appropriate Minister who in turn informs the head of the particular industry concerned. He cannot air the matter at Question Time in the House of Commons.

It would seem that M.P.s are becoming dissatisfied that there should be some questions they can ask and some they are not allowed to ask. A question was put to Mr. Butler in the House last week on this subject, relating especially to the putting of questions to the Minister of Transport, in this case about British Railways.

The Floor of the House of Commons hardly seems a fit place to complain about the consistent delays of the 8.50 a.m. train by which many may be inconvenienced, but the general demand from other speakers was that they wished rather to be given the right to ask the questions, though the original speaker, an opposition back bencher, admitted that the present arrangement had been satisfactory in the past.

If the change is made, what then? Does it imply that the standing of the nationalised industries will change from its present relationship to Parliament through their own ministers to that of a Government department run from Whitehall, in fact on the same footing as the Post Office? We think it is extremely unlikely since the view is generally held that the Government, though against nationalisation in principle, realises that it is best to maintain the present arrangement and to see that the industries are run as efficiently as possible.

A change in the questions which can be asked in the House—and Mr. Butler has promised to consult all those concerned—might well have a stimulating effect on some project being carried out by a nationalised industry, which appears to be hanging fire, but to restrict these industries' freedom even further simply to make this possible, might have a fatal effect on those serving in them. Businessmen of ability are unlikely to consider them as a career, and in our own industry, at any rate, much of the goodwill and team spirit gained in the last ten years would be unretrievably lost.

Personal

MR. JOHN W. PALLISTER retired last week from the Tees-side Division general managership of the Northern Gas Board. He is one of the men who started the Tees-side gas grid, which was extended and completed after the various gas undertakings were nationalised. Directly after the war he was chosen by the Ministry of Fuel and Power to be one of a small team of observers to visit Germany to study the German gas grid. When he first began work with the Middlesborough Corporation Gas Undertaking in 1921, the annual production was 895 mill. cu. ft. Last year the gasworks produced 3,773 mill. cu. ft. and the Division produced 8,705 mill. cu. ft. Born in Wiltshire, Mr. Pallister spent most of his life on Tees-side and served articles with Ashmore, Benson, Pease & Co. Ltd., the Stockton engineering firm where he found much experience in designing, manufacturing and erecting gasworks plant. In 1921 he joined the Corporation undertaking, becoming assistant engineer and manager in 1926, and was appointed gas manager in 1937. In 1949, after nationalisation, he became manager of the Middlesborough Division of the Northern Gas Board. With the formation of the Tees-side Division in 1954, he was placed in charge. He was also chairman of the Divisional General Managers' Committee of the board and chairman of the North of England Gas Managers' Association auxiliary section in 1936 and president of the Association in 1943. For seven years he was a member of the Council of the Institution of Gas Engineers. Staff and employees of the division presented Mr. Pallister with a portable wireless set before he left and his wife with a dress case. A silver candelabra was presented by the Divisional General Managers and Board officers. Mr. and Mrs. Pallister will start their retirement with a four months cruise which will include the Mediterranean.

SIR HENRY JONES, Deputy Chairman of the Gas Council, has been elected President of the British Road Tar Association, succeeding MR. C. E. CAREY, who is to be President of the International Road Tar Conference during the next two years. LORD VERULAM was the guest of honour at the annual dinner of the British Road Tar Association held in London recently.

MR. J. W. THORNES has been appointed an additional Midlands Area Representative for Megator Pumps & Compressors Ltd. He will be based on Nottingham.

Mr. Reginald H. Epps, Secretary of the Eastern Gas Board, received his M.B.E., awarded in the Birthday Honours List, at an investiture at Buckingham Palace last week. Mr. Epps has been Secretary of the Eastern Gas Board since nationalisation. He joined the former Tottenham and District Gas Company in 1923 and, during 26 years with the company, held the posts of chief internal auditor, assistant accountant, and secretary and accountant.

A team from Stourbridge works, representing the Wolverhampton and District Division, won the Diamond Trophy in the annual rescue competition of the West Midlands Gas Board, held at Birmingham last week. The trophy was presented by the Chairman of the Board, Mr. G. le B. Diamond, who was accompanied by the Deputy Chairman, Mr. W. R. Branson. Seen here is the captain of the winning team, Mr. A. H. Steele, receiving the trophy from the Chairman.

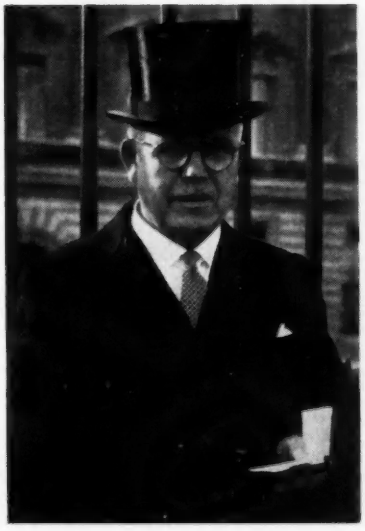
Correspondence

DEAR SIR,

Your editorial 'Must Gas Be Tied To Coal?' on October 21 contains many expressions of opinion about the coal industry which must be your own affair. However, errors of fact are another matter.

First, you refer to 'a high cost coal industry like our own.' In fact, coal is produced at a lower cost in Britain than in any other European country.

In a rhetorical question 'has the coal industry produced a refined solid smokeless fuel for the domestic grate or boiler other than Phurnacite?' you imply that the answer is no. The fact is, however, that earlier this year the Board put on to the market its new fuel, Warmco. Demand has been extremely good and the Board expects to produce 170,000 tons this year—a large output, I would suggest, for the first year of a new fuel.



Two other processes worked out at the Board's Coal Research Establishment are to be used in two pilot plants and the Board intends to expand production from these plants to full scale commercial production at the quickest possible rate, related to market requirements. The Board expects to invest at least £10 mill. and possibly £20 mill., by 1965 in their new processes for premium solid smokeless fuels. The annual rate of output in 1965 will be at least one mill. tons a year.

Yours faithfully,
NOEL GEE,
Director of Public Relations,
National Coal Board,
Hobart House,
Grosvenor Place, London, S.W.1.

October 26, 1959.

Diary

November 11.—SCOTTISH G.C.C.: 26 Drumsheugh Gardens, Edinburgh. Council Meeting at 11 a.m.

November 11.—WESTERN JUNIORS: Visit to factory of Newman Industries Ltd., Yate, followed by a short paper by G. Redfern on 'Flameproof Motors—Application and Construction.'

November 12. — INSTITUTE OF FUEL, MERSEYSIDE SUB-SECTION: 9, The Temple, Dale Street, Liverpool. 'Smoke Density and Various Aspects of Grit and Dust Emission,' by P. G. W. Hawksley. 7 p.m.

W. C. Holmes produces new dust collector

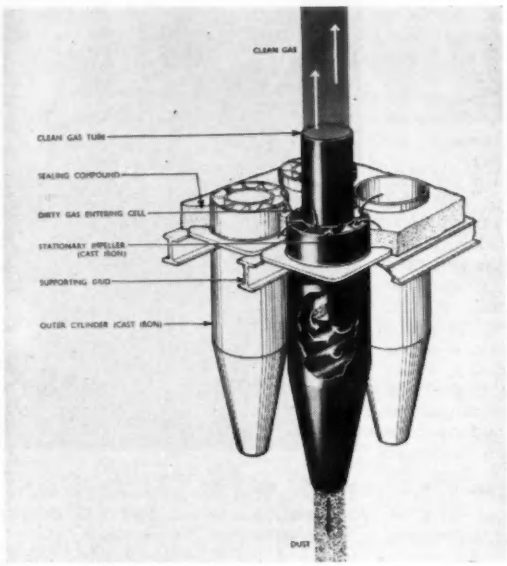
A recent addition to the range of dust collection and control plant, manufactured by the gas cleaning division of W. C. Holmes & Co. Ltd., is the Type UK reverse flow Holmes-Rothemuhle multi-cell cyclone dust collector. This collector has a higher collection efficiency than the Type RM through pass collector which was introduced into the United Kingdom in 1957, and is particularly suitable for those applications where good gas distribution conditions cannot economically be achieved and where large gas volumes are encountered.

Concentric tubes

The collector comprises an assembly of cyclone cells, the number of which is directy proportional to the volume of gas to be cleaned. Each cyclone cell consists of two concentric tubes; an outer dirty gas cylinder with a stationary impeller fixed at the inlet and an inner clean gas tube which passes up through the centre of the impeller. The outer cylinder is approximately 10 in. in diameter, except at the base, which is conical in shape. The high separating efficiency of the collector is derived from the relatively small diameter of the individual cyclone cells.

The individual cells are supported in a sheet steel grid, which is in turn enclosed in a rectangular steel casing, the lower half of which serves as the dust bunker. In the upper half of the casing, known as the top box, the clean gas tubes terminate in a stepped floor, the construction of which facilitates the removal of individual cells for inspection and maintenance. To ensure that entering dirty gas does not by-pass the cells, gas tight joints are made on the supporting grid with a special sealing compound.

In operation, the impeller imparts an intense swirl to the dust laden gas as it enters the cell causing it to descend with a spiral motion. Near the apex of the conical section of the dirty gas cylinder the axial velocity of the spiraling gas is turned through 180°. The dust-free gas, having reversed direction, passes up through the clean gas tube to the exhaust fan and stack. The reversal of direction of flow causes the dust to be centrifuged and it is propelled downwards into the dust bunker.



This is a diagram of the new dust collector from W. C. Holmes & Co. Ltd. It is, say the makers, particularly suitable for use where good gas distribution conditions cannot be achieved and where large volumes of gas are encountered.

Hungarian natural gas output 'must be trebled'

PROPOSALS to double oil production in five years and to treble the production of natural gas for domestic and industrial use are made in a report, published in Budapest, of proposals for Hungary's second five-year plan, starting in 1961.

By 1965, oil production must be increased to 1.7-1.8 mill. tons—double what it was last year, says the report. And to increase the supply of mineral oil from the Soviet Union, Hungary is to build its own section of the pipe-line which will bring Soviet supplies to several countries in Eastern Europe.

Oil processing

'Building of new oil-processing plants must begin,' says the report, 'and by the end of 1965 the country's oil processing capacity must grow by more than 2 mill. tons. 'Besides increasing the quantity of gas produced industrially, production of Hungarian natural gas for factory and domestic use must rise three-fold on the 1958 figure of 105 mill. cu. metres.

'This increase must be based on the natural gas opened up recently in the lowlands. Part of the gas must be used to improve the power supply of some regions of the lowlands.'

Ninth A.G.M. of I.G.E. London and Southern Section

A SILVER cigarette case, a token of the year's work, was presented to Mr. J. C. Hogg, immediate past chairman, by his successor, Mr. R. F. Robinson, at the well-attended ninth annual general meeting of the London and Southern section of the Institution of Gas Engineers, held in Pepys House, Westminster, last Tuesday.

Elections

Mr. J. A. Hepworth was elected Senior vice-Chairman of the section, and Mr. R. M. Farror Junior vice-Chairman. Mr. R. F. Robinson was elected District Member of Council of the Institution, and Mr. J. T. Veryard continues in office as Honorary Secretary and Treasurer.

The annual report and statement of accounts were presented and approved, and presentations were made of certificates for associateship of the Institution to two members. Confirmation of the minutes for the last annual general meeting, held in October, 1958, was given, and two new members of the Section were introduced.

After the business meeting, a paper by Mr. S. A. King, of R. & A. Main Ltd., was presented. The paper appears on p. 236 of this issue.

Reforming plant contract from Dutch company placed

CHEMICAL CONSTRUCTION (G.B.) LTD. has been awarded a contract by N.V. Maatschappij Tot Exploitatie Van Kooksovengassen (MEKOG), Ijmuiden, Holland, for a gas reforming plant to treat natural gas for the production of ammonia synthesis gas.

The plant will reform approximately 125,000 cu. metres per day of natural gas and is followed by a CO conversion plant producing a gas suitable for sending to the existing purification and ammonia synthesis plant.

News from

SCOTLAND

A new gas showroom . . .

. . . was opened recently in High Street, Cowdenbeath, Fife, by Provost S. R. Paterson, in the presence of Mr. D. L. Dickson, Assistant General Manager of the Central Division; Mr. G. E. Wilkes, Divisional Sales and Service Manager; Mr. W. Anderson, Group Manager; and Mr. R. Campbell, Service and Sales Superintendent.

Dumfries householders . . .

. . . in the neighbourhood of the gasworks have organised a petition to the Town Council, protesting against what they call 'the unbearable stench' pervading the district. The petition, which has 250 signatures, requests 'that some action should be taken by the Scottish Gas Board.'

The Central Sales Circle . . .

. . . of the Scottish Gas Board, meeting in Perth, was given an address by Mr. A. E. Harder, Managing Director of a firm of heating engineers, in Risby, Derbyshire. More and more old property owners, as apart from new house owners, were turning to central heating by gas-fuelled boilers, he said.

Planned maintenance scheme for U.K.

LANCASHIRE DYNAMO ELECTRONIC PRODUCTS LTD., of Rugeley, Staffordshire, announce that they have introduced a planned maintenance scheme for customers in the United Kingdom. The scheme, which will be operated by the Service and Field Operations Department, involves four visits per annum and will be undertaken on a two-year contract basis with annual payments.

The annual charge will depend upon the size and value of the equipment.

M.P. asks: Why not questions?

POSSIBLE LEGISLATION FOR M.P.s' ANSWERS

'Silent' state industries complaint

THE introduction of legislation, enabling M.P.s to ask questions about the day-to-day workings of the nationalised industries, is to be the subject of a question in the House of Commons to the Prime Minister by Mr. Robert Mellish, Socialist Member for Bermondsey (London). He claims that although Members are allowed to table questions about the Post Office, similar questions about the British Transport Commission, the National Coal Board and the authorities for other nationalised industries are unacceptable.

'Interference'

The point was made at last week's Question Time in the Commons, when the business for this week was being discussed. Mr. Mellish asked Mr. Butler, Leader of the House, if he was aware that questions would be put to various Ministers and that some members were dissatisfied with the present system of answering queries. Mr. Butler replied that he would pay attention to the point raised, subject to the general reservation about 'interference in the day-to-day activities of the nationalised industries.'

Mr. Mellish: That is the whole point. We know that when this arrangement was started there may have been good reasons for such questions not being asked, but we think that the time has come when they should be. We can ask questions about the day-to-day administration of the Post Office, so why can we not ask similar questions on anything we like?

Mr. Butler replied that the relationship of the nationalised industries to Parliament was a large matter. He was, he said, very much interested that at the opening of Parliament this issue should have been raised. He thought that the matter should now be properly considered, not merely discussed across the floor.

The Times political correspondent said on Monday that some Members of the Commons, particularly on the Labour side, believe that Parliamentary questions might help to promote efficiency in the industries under public control.

NEW DoRDeC MEMBER

R. & A. Main, Ltd., have been elected to membership of the Domestic Refrigeration Development Committee (DoRDeC). There are now ten members of DoRDeC, which is representative of the leading domestic refrigerator manufacturers in this country and is responsible for the public relations and promotion of the domestic refrigeration industry.

Gas for future power stations

LONG distance pipe-lines, carrying coal gas to electricity generating stations of novel and exceptionally efficient design, are expected to replace electricity grid lines in parts of the United Kingdom by the 1970's. The operation of the new system depends on the further development of techniques for converting coal into gas at National Coal Board pitheads, and its transport under high pressure from collieries to new style generating plants in industrial centres. The coal gas would be fed into a 'fuel cell,' which would use it to generate electricity.

A fuel cell of this type, capable of operating on a coal gas, is being developed at the Sondes Place Research Institute, Dorking, Surrey, and a unit of similar type could be produced, present research indicates, which would operate, at least, twice the efficiency of the best modern power station generating unit.

Orders placed for Frodingham process plant

THE firm of Henry Balfour & Co. Ltd. has received orders from the East Midlands Gas Board and the South Western Gas Board for plant involving the recently developed Frodingham desulphurising process.

At Basford gasworks, Nottingham, a unit with a capacity of 5 mill. cu.ft. of gas per day is to be installed for the simultaneous removal of H_2S and organic sulphur. This is in the nature of a semi-experimental plant and has not, as yet, facilities for the recovery of the sulphur as sulphuric acid.

At Exeter gasworks, a complete plant with a capacity of about 8 mill. cu.ft. of gas per day is to be installed, together with a sulphuric acid plant of the dry contact type, the acid plant being supplied by the Power-Gas Corporation Ltd.

The Exeter plant is designed for 99% removal of H_2S with the simultaneous removal of organic sulphur compounds to the extent of 90%, with the exception of thiophen, which is expected to be reduced by about 20%. The sulphur thus removed is recovered as 98% strength sul-phuric acid of high purity.

From a paper to the London and Southern Section of the I.G.E., London, October 27.

Selling Domestic Gas Appliances

By S. A. KING,
GENERAL SALES MANAGER, R. & A. MAIN, LTD.

I HAVE had very many more years experience of selling from within the warmth of the gas industry than I have in the much harsher realms of producers and sellers of gas appliances and it is because your Chairman feels that one so obviously bent on travelling the hard road to glory should have some ideas about the business that he has asked me to present a paper on the subject of selling domestic gas appliances.

The objectives of this activity for each of us are I think quite clear. We for the so-called sordid purpose of making profit, which in the broader sense means maintaining a virile business kept up to date with modern plant and providing reliable employment, while you engage in it primarily to develop the sales of gas and —if you are clever enough—to help defray some of the costs falling under the head of 'general consumer service.' To these ends standard overheads are applied to appliance costs and on paper at least we face the world with uniform selling prices.

Industry's Well-being

The market is then of common interest, and while you with your objective of selling gas may take special measures to cultivate it, we must each view the immediate and future potential for business in much the same way. As manufacturers of gas appliances more or less exclusively for the gas industry, we are obviously concerned with the industry's well-being and the steps it takes to do what we think to be imperative to its future —expand sales of gas domestically. In turn we endeavour to assess the likely success of the effort and reflect this assessment in our forward production planning. It will probably come as nothing new to most of you to be told that for major appliances like cookers, water heaters, refrigerators and space heaters, something like two years is an average time from original conception to bulk production—provided everything runs smoothly.

You will also know that, by production time, the manufacturer has backed his assessment of the industry and his own fancy in his appliance design with a good deal of money and that he cannot afford to make mistakes.

Some views I want to express are not necessarily the immediate or long term ones of my own company, neither are they of course any expression of policy of other manufacturers of gas appliances of which quite properly I know nothing. I should like, however, to refer to the general situation as I see it and to leave discussion to tell me how nearly you agree. Domestically, opportunity offers for selling gas in worthwhile volume for cooking, water heating, space heating, refrigeration and laundry. The manufacturer wants to make and sell appliances for these duties at a profit. These are my own present assessments of his prospects.

The new market in cookers is small—too small to sustain the trade—and replacement is the major business. However optimistic we may try to be, and Mr. Micawber made no success of living on optimism, I cannot but conclude that there must be a progressive decline in the annual sales of gas cookers. It may well be that a stable condition can be held at about equal shares with electricity but trends prompt me to think that as years pass this may be difficult to achieve. Present sales of gas cookers are estimated at 800,000 for 1959 and may I think reach 725,000. Improvement on this figure may never be reached again.

Three Broad Bands

This does not mean that we throw in the sponge. Seven thousand cookers are well worth making and selling and the gas yield is well worth assuring for a term of years. But neither you nor we can look for business salvation by market expansion in gas cookers. Therefore, let us go for the business with the kind of cookers that will help us to sell most and retain the load longest. Assuming adequate variety to permit selection and good attractive design, three broad bands of products I suggest are needed. First, a so-called low cost product—a good, wholesome, normal cooker with no frills and fancies to sell if possible between £25-£30. I cannot subscribe to the idea that every housewife hankers after de luxe equipment; adequacy is quite sufficient for many. Let us see then that minimum requirements in specification are not, or do not become, so lavish as to exclude us from this very wide market because it is impossible for the manufacturer to build a cooker which will satisfy both the industry and, because of price, potential buyers. Increasing sales of the two-burner small oven 'breakfast' cooker are indicative of public demand.

Next, the typical gas cooker in variety, well designed and attractive to sell at present values around the £40 mark. The price leaves some latitude in design and embellishment and at the present condition of the country's economy, the market is good.

Thirdly, the de luxe market, to some extent limited by product price but adequate to offer incentive to the manufacturer and load to the industry. That the industry needs de luxe models for both prestige and load is beyond question, but I doubt whether either industry or manufacturer accrue much benefit or profit from some of the gymnastics in design that have been indulged in. If so-called auto-cooking was a revolution in the art maybe there would be a strong case for it. But if it is

only contortionism for the few let us leave that to our competitor who, whatever we may say, can do it much better, easier and cheaper than we can and concentrate our efforts in the sphere in which we are strong—honest-to-goodness cooking. If at best we must continue to share the cooking business with electricity, it is in my view unwise to go out of our way to produce appliances which demonstrate to the unbiased marked competitive weaknesses.

I do not participate directly in the water heating side of our business but I have always been an enthusiast for gas and still believe in a big future for both manufacturer and the industry. I think instantaneous heating is by far the strongest suit, and one which is strengthened by successful thermostatic control.

While it is most unfortunate that we have no comparable answer to the immersion heater—neither do I think we shall be able to produce one—we have it more or less our own way with the instantaneous heater, which has the bigger potential. If the trend is away from solid fuel for heating and the traditional back boiler for supplying hot water, then, while we cannot hope to take it all, in my view a healthy and expanding water heating market exists. If the coke boiler gives way in large numbers to more refined methods of doing its work, its common function as an incinerator gives food for thought of business opportunity.

Home laundry, again, is no direct concern of mine. But my personal view is that there is no great future in it for gas. The wash boiler and the hand washer are simple low cost appliances, and for this reason should find a fair, though dwindling, market for some years. Reference to the combined gas/electric appliance is made later. I think both manufacturer and the industry will hold on to what they can of the market for as long as they are able, with no great prospect of fortune on the one side or load salvation on the other.

Electrical Bias

If, as I believe, the absorption unit is best for the general-purpose domestic cabinet, then in a very rapidly expanding market there is a big future for both manufacturer and retailer of domestic gas refrigerators. Competitively, cabinet for cabinet, there can be no strong case for the gas model compared with its electric counterpart. Assuming salesmanship on both sides to be of the same order, the electrician should have the bias because of his greater opportunity by reason of substantially more retail outlets. The corrective and advantage lies in my view in the very close understanding between manufacturer and the gas industry whereby planned production and distribution give a marked price advantage on the showroom floor. This opportunity of reflecting in low list prices the economy of distribution which can be achieved between manufacturers and retailers of gas appliances is a strong competitive weapon which can do much to offset the more ambitious though more costly systems of electric appliance marketing.

It would be superfluous here to make comment about opportunity. We are all very well aware of it and set to exploit it. As prominent manufacturers of a range of space heaters we are particularly pleased with the steps area boards have taken to adjust gas tariffs to make space heating by gas economic and with the great efforts being made to promote appliance sales.

It may well be that this trend towards gas for space heating marks another phase change in the pattern of domestic fuel usage. If this is so, we should do well to profit by past experience. Had we faced up sooner to the inevitable in the lighting field our forward efforts in cooking, water heating and space heating would have been the stronger. Let us not persist in pressing the case unduly, and for too long, of those particular types of appliances—I have in mind the washing machine and the auto-cooker—which to fair judgment are second best, lest in the process we sow doubt concerning our case where in fact we are really strong. Hitherto it has generally been accepted that the cooker is the keystone of decision as to whether gas is to be provided in new domestic properties. But the time is fast approaching when the deciding factor will be space heating, the cooker taking second place as a consideration.

The appliance manufacturer is concerned with producing pieces of domestic equipment which, by design, appeal to the purchasing public and which, through channels of distribution and retailing, can be disposed of. Unless he has other direct or indirect interests, provided these conditions can be satisfied, he has an open mind as to whether his appliances are designed for gas, electricity, paraffin oil or wood.

Close Understanding

There is influence in tradition and importance in well-established, reliable retail outlets. For these reasons, manufacturers of gas appliances have generally been in the business for many years, with a close understanding of the needs and ambitions of the industry to which is extended, mainly by force of circumstance, a complete and exclusive retail agency. As a business relationship it works admirably and must be one of the cheapest forms of distribution of so-called ' consumer durables,' resulting, as neither the industry nor the manufacturers take unto themselves fat profits, in low prices to the ultimate purchaser, compared with costs of manufacture.

This situation, other things being equal, will give a price advantage over competitive fuel products and should maintain what is essential to low cost—a high level of sales. If, however, because of design trends which tend to increase production costs of gas appliances, or if for other reasons competitive fuel appliances make inroads into the business, levels of sales fall with a resultant increase in production costs and retail prices. The question posing itself then is—if the industry wants to be in a position to sell domestic appliances at the lowest possible price and if limited sales prevent manufacturers from lowering product costs, should those appliances which lend themselves to it be produced and marketed in both gas and electric versions ? Refrigerators apart, I shall be most interested in your views during the discussion.

Design and development trends indicate many advantages that can accrue to gas appliances by the use of electricity to perform some part of the overall function—the motorised washing machine and the auto-cooker are typical examples. The gas appliance designer is, however, greatly influenced by the sales prospects

of what he produces and there appears to be at the moment some inherent problem in the retailing by the gas industry of gas appliances demanding, for their successful functioning, a supply of electricity. In America, where generally domestic equipment is sold and installed by traders not directly concerned with the selling of gas or electricity as such, the problem does not appear to arise mainly I think, because staff employed to install dual service appliances can fit both and after sales service is likewise simplified. Whether steps can be taken in this country to offer a similar composite service I am not certain. Perhaps some of you can tell me you have already successfully done so. It is true to say that over the years the knowledge in the trade outside the industry of gas appliances, their installation and servicing—perhaps water heaters apart—has become less and less until it is now more or less the prerogative of the industry alone. Two points, then, I think remain to be resolved from the sales angle before gas appliance designers can be given a clear indication about the available service facilities they can employ.

Either there must be a completely satisfactory resolution of the problem of installation and servicing gas/electric equipment or the industry must rely on appliances designed for service by gas alone.

I think it should be remembered that the relative costs of fuels, the relative level of performance and the relative initial cost of comparable appliances designed for gas or electricity alone is important in this context. A gas/electric appliance which is comparable in initial cost with its all-electric counterpart, but does no more and costs no less to run but demands both services, has little to commend. It may, I feel, in the market and by publicity, focus attention on the limitations, which we all accept that gas has as a domestic service. I think, concentrating on the domestic services, that gas does so well is better than a dissipation of energies in directions, doubtful both as to prestige value and potential increased thermal yield. Resolve the problems of installation and servicing limit the use of electricity to those appliances which are improved by it and which are better appliances in the broadest sense than the all-electric counterpart and I think design and sales effort will be profitably directed for appliance makers and the industry.

Potential Sales Limits

Comment has been made over many years about the limitations to potential sales of gas appliances brought about by restriction of retail outlets to gas showrooms, sometimes given as numbering about 1,000. Steps have been taken in many parts of the country to improve this situation by the appointment of authorised dealers. I think there can be no doubt at all, whatever the pros and cons of dealerships, that more sales result, which pleases both you and me. The fact remains, however, that dealers are still agents for gas Boards and while gas appliances may be displayed amongst the general goods he sells, the more usual condition is a section of his display devoted to gas appliances.

I am concerned at the moment with one particular aspect of this subject of sales of gas appliances other than through gas boards, and that is with those all-important appliances—gas space heaters. As you know my company's production of space heaters at present is limited to a range of radiant convectors, in which we claim to be both pioneers and specialists. These appliances are all designed to sit against a flat surround and ventilate into a chimney. Our production will, I hope, be disposed of by your industry or its agents. Now I am concerned with the Jones's of this world who are having a new house built, or renovating or redecorating an old one to the extent of having new fireplaces fitted. The numbers of firms who appear to make a good living out of making and selling fireplaces prompts me to estimate that the numbers of new fireplaces purchased amount to many thousands per year, yet I doubt whether, in any fireplace showroom in the country where Mrs. Jones goes to make her selection, she will see a gas heater in an appropriate setting. What she must do if she feels that gas is better than burning raw fuel and is enterprising enough to pursue her inclination, is to select a fireplace and trappings designed for raw fuel and subsequently by adaptation, have it fitted for gas. Surely there is opportunity here to broaden the outlets for gas space heaters by seeking the co-operation of the fireplace trade and coming to some arrangements with them whereby they will become dealers in this speciality of gas space heating.

'Something Must Be Done . . .'

I think by and large the trade—that is, the builders' merchants, jobbing builders and plumbers, have long ceased to have any serious interest in gas with a consequent absence outside the industry of any urge to do business with it or, for that matter, to appreciate that any worthwhile profits can be made by way of it. I do suggest that if the gas space heating business is to be exploited to the full, something must be done on the ground floor where the public's thoughts and actions on the subject usually begin.

It strikes me also that with the substantial economies that can be made in house building costs by employing hollow brick ventilation, and the increase in usable floor area by removing the traditional chimney breast, an opportunity is offered to manufacturers of gas space heaters and the industry to encourage architects to design for gas in the first instance. This is a much bigger and better story than that of bedroom heating, which we sold quite successfully to the profession between the wars.

My paper is short and makes no attempt to provide a touchstone of success between the salesman and his customer, because I believe there is no lack in the industry of competent and successful salesmen. What I have endeavoured to do is to pose certain questions and suggest certain answers in order to achieve a common sense of direction. Given that and fully supported in it, I feel certain we shall find no lack of response from the showroom floor.

DISCUSSION

Mr. J. D. C. Woodall, South Eastern Gas Board, said that the figure of 800,000 cookers mentioned in the paper was an industry estimate, set for the current year. He thought it a good estimate. Looking at the sales trend, he said, gas cookers were becoming increasingly popular. But it was no good just shouting 'gas is best,' for sales of electric cookers were going up year by year.

He mentioned that a number of new houses were being built with no gas services in them. In this respect, he said, there was no alternative but for the tenant to choose electric appliances.

For the balance he said, where the gas salesmen were given a chance, there was a possibility of an 80% success. This, he said, was not up and down the country, but was a regional figure.

Referring to the question of prices, Mr. Woodall mentioned that there were tens of thousands of people who did not seek beauty in a cooker. The bulk of the public, he said, had no pride in the kitchen and would buy the cheapest product comparable with efficiency. A good cooker selling price, which attracted the public was, he said, about £30.

On the question of water heating, Mr. Woodall said that the industry's strong card was instantaneous heating. Hot water storage was not one of the industry's best points.

Mr. G. H. W. Madge, North Thames Gas Board, remarked on his misfortune in following Mr. David Woodall, who had said practically all that he wanted to say, but much more picturesquely. He, too, felt that Mr. King could not have been in his customary lighthearted mood when he wrote parts of the paper, especially those concerning cookers. He thought it was most unsafe even to appear to concede any part of this market to our electrical opponents. We had only maintained our competitive position in the past by making outstanding improvements in cookers, and he felt that we could not afford to ignore developments such as electric time control ignition, etc., merely because it was easier for the electrical people to do these things. After all, who would have thought a few years ago that today, automatic ignition of gas cookers would be standard. Here was a direction in which we had advanced *vis-à-vis* our position with electricity before the war. Another was the case of the grill, formerly our weakest spot.

We had probably lost some ground to electricity in the matter of speed of boiling, although we are still faster, he said. It was necessary that we should rectify this position as our American friends had done, by the introduction of super high-speed boiling burners.

With regard to some developments, such as electric time control, it might be that we did the job no better than electricity, but this was no reason for not doing it at all. There may be a ready market for two appliances of equal merit, and in this connection the speaker drew some analogies from the motor trade.

The main point made by Mr. Madge was that the cooker load must be safeguarded by a vigorous replacement programme. The type of cooker required for this is certainly not an austerity model, which may be little better than the one it is designed to displace. The customer who has hung on to his perfectly satisfactory gas cooker for many years must be offered one which is outstandingly better if he is to exchange it, the implication being that if he does not, he may eventually decide on a modern electric one.

Mr. J. A. Buckley, North Thames Gas Board, said he would say that he felt it a good thing to take as realistic a view as possible of our position *vis-à-vis* our competitors, so that effort can proceed in a clearer direction than hitherto. He thought Mr. King's paper met this requirement very well indeed, but he did agree with the previous two speakers that there were one or two slightly pessimistic approaches which he did not support.

On the subject of home laundry, he did not agree with the way the gas electric washing machine was almost written off in this paper. Mr. Buckley said: 'As you know the first of these appliances was introduced for district sale a month or two before a severe imposition of hire purchase control. At the time, in the Division I was serving, we increased our sales to 70 per week in a few weeks, and I believe the Board's figure was between 200 and 300 per week, but this good start soon fell away under the handicap of short period hire purchase.

'The purely electric washing machine with its greater number of selling outlets and advertising also suffered, but not so critically as the gas/electric machine. Now, with the washing machine market effervescing, we have still been trying to sell models which were introduced as long ago as six years. These are now out of date, out priced, and not competitive with purely electrical models.

'A recent market survey on the North Thames area has shown that those people who have bought gas/electric washing machines appreciate the facility of fast boiling, and one only has to look at the large sums of money invested on advertising by one of the leading detergent manufacturers proclaiming "boils whitest" to know that this is a valuable asset in many customers eyes. I am not suggesting that we can rival the present output of electric washing machines but I do think that the whole thing warrants further consideration.'

'On the question of dual service appliances, again I feel that we must take a more positive approach to this than as suggested by Mr. King. In my view whether we like it or not electricity on our new appliances will be featured as already seen in the form of rotisseries, strip lighting, oven lighting, ignition, forced convection, etc.

'In general I agree with Mr. King's main line of reasoning but I also consider that each of the main five domestic services are very much mutually supporting, more particularly with promotional tariffs and that one of our principal difficulties is the wide variety of uses to which electricity can be put in the home. We should not therefore opt out of the washing machine or any other market, without first ensuring that our lack of success is not due to lack of competitive appliances or vigorous selling.

Mr. P. G. Wright, Secretary, Watson House Centre, said that he was sorry Mr. King had not mentioned the work of Watson House, nor especially the Appliance Inspection Committee, consisting of all the area Boards' chief commercial officers and their technical advisers, which considered the future appliance needs of the industry in great detail and then made their suggestions available to the appliance makers through reports endorsed by the Commercial Policy Committee of the Gas Council.

He thought Mr. King might have explained why this country was slow in following good American design features and mentioned the poor response of manufacturers in providing cooking units for building into cabinets, a type which represented about 50% of American output.

Nor had Mr. King perhaps realised the interest shown by builders in warm air equipment, and the new load which smokeless and odourless incinerators provided.

From a paper to the Midland Section of the I.G.E.

Some Aspects of the Law relating to the Gas Industry

By W. BURNSTONE, LL.B.

SOLICITOR, EAST MIDLANDS GAS BOARD.

WITH a few notable exceptions, it is rare these days for gasmaking to be undertaken on a virgin site, and the vast majority of plant is erected at works which have been used for gasmaking purposes or storage for many years. It follows that usually the site is referred to in a Local Act or Statutory Order and its use for a variety of purposes connected with the industry is authorised.

One of the major questions which arises in land development today is whether planning permission will be forthcoming. There is a provision, however, in the Town and Country Planning General Development Order, 1950, whereby permission is given without further application for 'development authorised by any Local or Private Act of Parliament or by any Order approved by both Houses of Parliament, being an Act or Order which designates specifically both the nature of the development thereby authorised and the land upon which it may be carried out' (Class XII, Town and Country Planning General Development Order, 1950).

Scheduled Land

The effect is that, in the case of land within this class—often referred to as Scheduled Land, since the land is usually described in the Schedule to the Act or Order—no planning consent is required, although the Planning Authority has certain restricted rights where it is proposed to construct or alter buildings (including bridges, aqueducts, piers or dams). In such cases, permission is required but cannot be withheld unless the building will injure the amenity of the neighbourhood and is reasonably capable of modification so as to conform with that amenity. No permission is required for plant erected on Scheduled Land.

Once the site is ready, it is necessary to enter into a contract for the erection of a plant. It would be quite possible to do this by a very simple document or even by an exchange of letters, and to rely on the law of contract to elucidate any difficulties which might subsequently arise. I would suggest that this might well prove unsatisfactory in practice in the case of large contracts, because it is essential in such cases that both parties should be certain as to their respective intentions and as to what they have each agreed to do. From earliest times, therefore, it was realised that in building operations some general conditions should be laid down for incorporation in the contract. Indeed, the Royal Institute of British Architects published their first form for use in connection with building work as long ago as the late 19th century, and this was revised in 1909, 1931, 1939, 1952, 1956, and 1957. Various other interests have seen the need for similar forms, including the gas and electrical industries and civil engineers. The form of general conditions in use in the gas industry has been revised fairly recently and is a most useful document since it deals with those contractual problems which constantly arise in the industry.

In the general conditions recommended by the Royal Institute of British Architects, and in those recommended by the National Federation of Building Trades Employers for sub-contracting work, there are provisions whereby, in certain circumstances, the building owner can pay monies directly to a sub-contractor for work done by the sub-contractor. This is a most interesting provision which is not included, so far as I am aware, in any other form. You will appreciate that direct payment by a building owner to a subsidiary contractor can only be made if there is clear authority to do so, because no contract subsists between the building owner and the sub-contractor, and, in default of an enabling clause in the main contract, the sub-contractor cannot give a receipt which would be effective against the contractor.

In considering problems related to the law of gas supply, we have to turn to the Third Schedule of the Gas Act, 1948, and all reference hereafter will be to the Third Schedule unless otherwise stated.

The Street Works provisions are contained in the first part of the Schedule, but the former paragraphs 2, 3, and 5, have been repealed by the Public Utilities Street Works Act, 1950. Previously the Schedule not only gave permission to break up streets, but laid down a code to be observed in so doing, but now, of course, the code is contained in the Public Utilities Street Works Act, 1950. However, the street works provisions of the Third Schedule are still vital, and we must consider a number of points.

Serious Offence

The Queen's Highway is not to be interfered with lightly, and normally nobody can obstruct it in any way. If they do so they are committing a nuisance which is a serious offence and punishable on indictment. Furthermore, the High Court will, in a serious case, issue an injunction to restrain an interference with a highway.

The only method by which these stringent provisions can be surmounted is by statutory permission, and,

of course, that is the reason why so many of the former gas undertakers obtained special powers. Corresponding powers are now contained in the Schedule.

The power to break up streets in order to lay pipes, given in the Act, applies not only to the use of pipes for supplying gas but also for carrying off the washings and waste liquids which may arise in the manufacture of gas and for the purpose of procuring, conducting or disposing of any oil or other materials used in or resulting from the manufacture of gas or any products of or derived from such manufacture and for any other purpose connected with the functions of an area board.

The rights we have been examining apply only to streets, which expression includes any square, court, alley, highway, lane, thoroughfare or public passage or place. They apply so long as the public have a right of access, that is, if the street has been or is deemed to have been dedicated to the public, and have nothing whatsoever to do with the question of responsibility for repair of a street. Confusion sometimes arises on this point. If the public have unrestricted access, the right to lay apparatus automatically follows, even though the road is a private road in the sense that it is repairable by a private person or persons. The question of adoption of streets and their subsequent repair by the inhabitants at large does not affect the matter except as to the service of notices. In one case service will be on the highway authority and in the other on the street managers, who are usually the persons owning property along the street.

Important Provisos

The fact that the right to lay pipes is confined to streets, as defined, is emphasised in the Schedule. It is provided that an area board may not place pipes or other works through or against any building or on any land not dedicated to the public use, without the consent of the owners or occupiers. But there are two very important provisos to this sub-paragraph which should be considered in some detail. The first of these deals with streets which have been laid out but not dedicated to the public use and gives the area board similar right to those which exist in dedicated streets. The second allows an area board, upon giving seven days' notice to the owners and occupiers, to enter upon land or building for the purpose of placing a new pipe in the place of an existing pipe which has already been *lawfully* placed or of repairing or altering any pipe *lawfully* placed. Lawfully means that the work was done with permission, and it must be presumed that once a pipe has been lawfully placed there is a right for an area board to retain it in position because the right to lay a new pipe or repair or alter an existing pipe would be of very little use if there was no right to keep it where it is. This, of course, will not be the position of an agreement was made when the pipe was laid authorising the owner or occupier to terminate the arrangement by notice, because once the notice expires the pipe will no longer be lawfully laid. Most area boards use a form of easement in perpetuity containing provisions to ensure that mains are undisturbed and access to them is preserved.

The Schedule also deals with consumer relations. The first aspect is an area board's duty to supply consumers. An owner or occupier of premises is given a right to demand a supply of gas if the premises are within 25 yards of a supply main, that is a main which is not being used for the purpose of giving a separate supply of gas for industrial purposes or conveying gas in bulk. It should be noted that this duty arises only if a notice requiring a supply is served by the owner or occupier on the area board.

An area board is entitled to recover the cost of maintenance of pipes which were laid at the expense of the owner or occupier of the premises. However, this provision only comes into effect, as we have already seen, when a notice requiring a supply has been served. Therefore, in a vast majority of cases, and certainly where service pipes were laid before the Act, it will not apply. The question of who is then responsible for the maintenance of service pipes is a complex one, but a rough guide can be given as follows:

1. Where a pipe has been laid in the property of the consumer, for example his garden, one can generally assume that it has become part of the freehold and as it belongs to the owner it is up to him or his tenant to repair it.

2. Where the service pipe is laid in a place dedicated to public use, for example a street, or through a third person's property, the test is ownership of the service pipe, with the answer depending on who paid for it.

Area boards can demand a security for the payment of money in respect of the gas supply. It is sometimes not realised that security can be required not only from new consumers but from existing consumers. In practice, no-one is keen to take security and accept the consequent liability for interest if it can be avoided, but it often happens that there is no other way of surmounting a difficult situation and by this I do not merely refer to the consumer whose credit is dubious. The failure to give security, when demanded, is one of the few cases in which an area board is authorised to discontinue a supply. The importance, therefore, is that where something is done which does not give rise to the right of cut-off the provisions as to the demanding of security can be brought into play.

Relief from Obligation

In order to relieve the heavy burden which could be placed on area boards by the demands of industrial consumers, relief from obligation to supply such consumers is given where the supply would necessitate the laying of a new main or the enlarging of an existing one or the construction or enlarging of works other than a main. In such cases an area board can demand a written contract providing for a minimum quantity to be taken for a fixed minimum period and for the consumer to make payments towards the cost involved in giving the supply. Area boards are further relieved from their obligations to give a supply where that supply is only required for standby purposes.

The distance of 25 yards previously mentioned is increased to 50 yards in the case where the supply is required for public lamps so that a lighting authority can demand a supply provided there is a main within 50 yards of any lamp.

In the case of any default of the provisions which we have been discussing, area boards are liable to a fine not exceeding 40s. a day.

The Schedule makes provision for the measuring of

gas supplied and gives an area board the right to demand that the supply should be taken through a duly stamped meter. The consumer has the option whether the meter shall be an ordinary or prepayment meter. Provision is made in the Schedule as to the maintenance of meters, the cost falling on whoever is the owner of the meter, but it is important to note that the liability for the expense of removing, inspecting and replacing a meter and fixing a substituted meter is that of the area board, whoever is the owner of the existing meter. One exception to this provision arises where the consumer requests an examination of the meter by a meter examiner and the meter is found to be within the permitted degrees of tolerance—in that case the expenditure is to be borne by the consumer.

One of the few exceptions to the duty to supply gas occurs where the provision that a meter shall be placed as near as practicable to the main, but within the outside walls of new buildings, is not complied with.

The register of the meter is prima facia evidence of the quantity of gas supplied. If, on examination a meter is found to be incorrect it is deemed to have registered incorrectly from the day after it was last read unless it can be proved that it went wrong at a later date. But it should be emphasised that these provisions are not exclusive and do not preclude an agreement being reached between an area board and the consumer where there is reason to suspect a meter is registering wrongly.

Antifluctuators and Valves

Paragraphs 17-21 and paragraph 27 deal with various miscellaneous matters affecting relations. All we need note at the present time is the provision which deals with antifluctuators and valves to the effect that new consumers shall have notice of the effects of paragraph 27 in the first demand note they receive.

The final matter on consumer relations is the recovery of charges. The area board is given the valuable right to claim sums up to £20 in a Magistrates' Court instead of a County Court. The question arises whether sufficient advantage is taken of this provision because the procedure is much less expensive in fees than the issue of a summons in the County Court and is often more effective. The sins of one occupier of a premises are not visited on the next occupant and, therefore, an incoming occupier is not liable for arrears already accrued.

Of course, before an area board can send out bills, they must have tariffs which fix the charges to be made for gas. The provisions governing tariffs are set out in Section 53 of the Gas Act, and I would mention three points in connection with that Section. Gas must be charged for according to the number of therms supplied unless there is some good reason why a non-thermal basis should continue to be used and the Minister authorises that continuance. The methods by which, and the principles upon which the charges are to be made, as well as the prices to be charged, must be set out in the tariffs which must be published in such a manner as, in the opinion of the area board, will secure adequate publicity. The tariffs must not show an undue preference to, nor exercise an undue discrimination against, any person or class of persons.

A statement to the effect that a person must notify the area board on quitting premises supplied by gas must appear on gas bills.

We now come to the main protective provisions against a defaulting consumer. The area board is relieved from the obligation to supply in the case of a consumer who has previously left premises owing money in respect of gas charges and meter rent. It should be noted that this remedy cannot be used where money is owed to some other area board. In connection with the right to cut off an existing consumer for non-payment of charges, the following procedure must be precisely followed-:

(a) There must be a demand in writing for payment of the charges—the usual gas bill meets this requirement.

(b) Twenty-eight days must elapse from the sending of the demand. One is entitled to assume that a communication sent through the post will arrive the following day, and, therefore, one calculates the twenty-eight days from the following day. However, in case of delay, it is always as well to allow a few days grace and I suggest that if a demand is sent out on, say, January 1, the 28 days should be taken to have elapsed on February 1.

(c) If the consumer has not paid the amount due, a further notice in writing is sent of the intention to cut off.

(d) Not less than seven days must then elapse so that if the notice was sent on the Monday it would be deemed to be served on the Tuesday and action can be taken on Wednesday of the next week. In case of postal delay, it is safer to wait until Thursday. The gas need not be re-connected until the consumer has made good the default and paid the reasonable expense of re-connecting the supply, but once he does this then the paragraph specifically provides that the obligation to supply contained in paragraph 8 shall come into effect. If it is suspected that the consumer may again default, the only remedy is to demand security.

A further part of the Schedule relates to penalties. These are twofold—those for the area board's protection, and those inflicted on a defaulting area board.

Interference with Meters

One of the few cases in which an area board may discontinue the supply of gas is if it is used in such a way as to interfere with the efficiency of the supply afforded by the area board. The question of interference with meters presents thorny problems and the language of the relevant sub-paragraph should be carefully noted. It is virtually in two parts, as follows:

1. If any person *wilfully*, fraudulently or by *culpable negligence* injures or suffers to be injured any pipes, meters or fittings or alters the index of any meter or prevents any meter from duly registering, an offence is committed.

2. If any person fraudulently abstracts, consumes or uses gas of the area board, an offence is committed.

Notice that in (1) we have besides ' fraudulently ' the use of the word ' wilfully,' which means that the person knows and intends what he is doing. We also have the use of the phrase ' by culpable negligence.' ' Negligence '

By far the best convector fire on every count!

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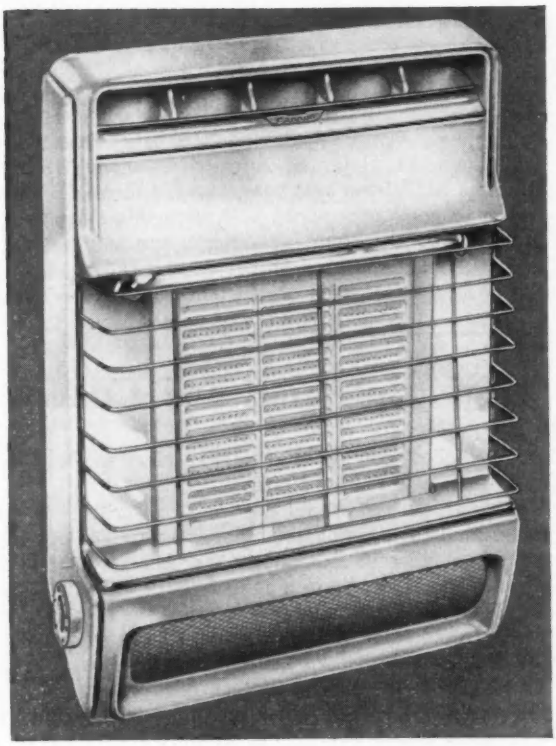

APPEARANCE . . .
Visual appeal, that's the first thing that arouses favourable interest in the GasMiser. It's a beautifully designed, wonderfully finished appliance, that will enhance the furnishing of every home.

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Pastel Blue with Cream; Pastel Green with Cream; Chestnut Lustre with Cream; All Cream or Lustre with Coin Bronze. Removable top grill and fender to provide a colour range for every decor.

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through the amazing GasMinder Automatic Room Heat Control, a thermostat that controls the room temperature to precise requirements.

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means failure to take the care which a reasonable man would exercise and any adjective in connection with negligence is usually regarded as superfluous. However, this being a statute, one must assume the word 'culpable' is intended to have a meaning and one can only assume that it means that the degree of lack of care is such as to make the action particularly blameworthy and possibly to indicate recklessness. On the other hand, in (2) we have only 'fraudulently,' which implies not only knowledge or lack of care, but an intent to defraud.

Judged on Facts

In the first series of offences, therefore, it is not difficult to prove a case, but in the second series the burden of proof is often very difficult to discharge. For example, where discs or foreign coins are used in meters, it is not easy to prove that the use of the gas was fraudulent, particularly where the consumer states that he used the discs merely as a matter of convenience and intended to pay. Some assistance is given in the matter by the provision that the existence of artificial means for altering a meter or for abstracting gas shall be prima facie evidence of fraud, but each case has to be judged on the particular facts.

Any damage caused by an offence in relation to meters or fittings can be recovered from the offender even though he has been prosecuted and if any injury has been done to the pipes, meters or fittings, the supply can be discontinued until the damage has been remedied. Once the damage has been made good, however, the supply must be resumed, even though the person has not paid for the cost of repair or for the gas consumed. There are proper remedies for these matters and if it is desired to cut off the supply the procedure laid down on failure to pay for gas must be followed. If nothing is owing for gas supplied, then one can always resort to the old standby—a demand for security.

Consumers are forbidden to re-connect with a meter a service pipe which has been disconnected by the area board, or, indeed, to connect any meter with a service pipe or disconnect any meter from a service pipe in any circumstances, unless 24 hours' notice in writing of intention to do so is given to the area board.

Penalties to which area boards are liable relate to the pollution of inland waters and, where they receive written notice of an escape of gas, for failing with 24 hours to prevent the escape.

Finally, the Third Schedule contains clauses of a general nature. The right of entry to premises is provided for a variety of purposes and this power has, of course, existed for a considerable number of years. The right is now subject to the provisions of the Rights of Entry (Gas and Electricity Boards) Act, 1954, which provides that entry cannot be exercised except with the occupier's consent unless it is with the authority of a Warrant under the hand of a Justice of the Peace. Such a Warrant is not required, however, where entry is needed in a case of emergency, that is, where there is reasonable cause to believe that circumstances exist which are likely to endanger life or property.

Identification

When a forceful entry is effected, it is essential that the premises are left secure, and that the damage is made good. Persons exercising these rights should carry with them 'the duly authenticated document' referred to in the Act. Most area boards issue a form of identification to employees which will serve this purpose. If entry is properly sought, any interference with an officer executing his duties in a proper manner can be the subject of a prosecution for obstruction.

Standards for Analysis and Testing of Coal and Coke

IN the revision of B.S. 1016:1942, *Methods for the Analysis and Testing of Coal and Coke*, the series of analytical and physical tests are now being issued in separate parts, of which the first six have already been published. Parts 7 and 11 are now available, and synopses of their contents are given below.

Part 7, *Ultimate analysis of coke*, deals with the determination by specified methods of the major constituents of coke, namely carbon, hydrogen, nitrogen and sulphur. The Liebig method for carbon and hydrogen has been slightly modified in detail from that given in the 1942 edition; furthermore, the use of oxygen only for combustion is now specified, particularly for a new high temperature (1,350°C.) alternative method.

The macro Kjeldahl method for nitrogen has been excluded because of the difficulty of specifying the maximum time of digestion. Instead, a semi-macro method, using finely ground coke and a mercuric sulphate catalyst, has been specified.

An improved Eschka method for sulphur has been introduced, and an alternative high temperature method has been added for use when numbers of samples have to be analysed or when results are required urgently.

In general—apart from the necessary modifications—the methods follow those already specified in Part 6 for the ultimate analysis of coal.

Part 11, *Forms of Sulphur in Coal*, deals with the determination of sulphate sulphur, pyritic sulphur and organic sulphur in coal. Here the classical method of Powell and Parr specified in B.S. 1016:1942 has been somewhat modified, digestion time for the hydrochloric acid extraction having been reduced from 40 hours to 30 minutes, and that for the nitric acid extraction from 24 hours to 30 minutes. It has been shown that an indirect calculation of pyritic sulphur content from the amount of pyritic iron present is more accurate than a direct determination.

Organic sulphur is obtained by calculation, the sum of the sulphur and pyritic sulphur being subtracted from the total sulphur determined as in B.S. 1016; Part 6.

NOTE. Parts 8, 9 and 10 are still in preparation.

Copies of these publications may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1. B.S. 1016, Part 7: 7s. 6d.; B.S. 1016, Part 11: 4s. 6d. (Postage will be charged extra to non-subscribers.)

APPLICATION OF SPECTROGRAPHY IN THE ULTRA-VIOLET TO THE DISTRIBUTION OF THE NICKEL IN CATALYSTS

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SPECTROGRAPHY in the ultra-violet is a recent method of analysis which enables one to detect and estimate rapidly, with great precision, most cations in quite small samples. This technique, applied to the study of diverse materials such as metals, alloys, refractories, has been greatly extended for some years and has become current practice at the Research Centre of Landy, where it is used.

(a) Qualitatively, to detect the constituent elements of a given sample. The rays emitted by these elements in arc or spark have well determined wave-lengths which can be compared with precision by comparing the spectra with that of pure iron. The presence of certain bands, called ultimate rays, characteristic of an element, determines the presence of that element in the sample,

(b) quantitatively, the optical density (or blackening) of one of the characteristic bands of an element is a linear function of the logarithm of the concentration of that element, provided that it is taken in the linear portion of the characteristic of the emulsion used, so that one can establish the proportional content of the element compared with known standards.

But as an optical density is never reproducible from one plate to another, an 'internal standard' is used. The principle of a quantitative spectrum analysis is therefore as follows. To estimate an element A in a substance containing a principal element B, the analytic factor is the ratio I_A/I_B, where I_A is the intensity of the band characteristic of A and I_B that of B, chosen in such a way that the intensities of the two bands present analogous fluctuations when operating conditions vary. In these conditions B constitutes an 'internal standard' for the estimation of A. This internal standard may either be an existing constituent of the mixture to be analysed or one added to facilitate analysis. Optical densities D corresponding to intensities of radiation I are measured and a curve is drawn representing the ratio of the optical densities as a function of the logarithm of the concentration C_A of the element to be estimated, using samples of known composition.

Then $\log C_A = f\left(\log \frac{I_A}{I_B}\right)$ with C_B constant.

corresponds to $\log C_A = f\left(\frac{D_A}{D_B}\right)$

which represents a straight line if one is careful to use the linear portion of the characteristic of the emulsion.

These two possibilities of spectrum analysis require different methods of excitation:—

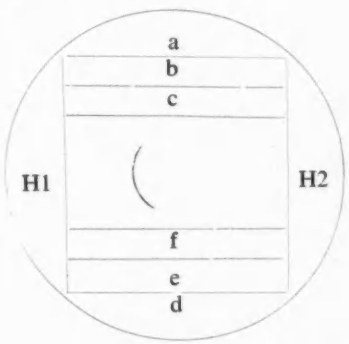
Continuous arc (thermal excitation) for qualitative analysis; the toal volatilisation of the sample permits the registration of the whole of its spectrum.

Condensed spark or interrupted arc for quantitative analysis; it is not necessary to obtain the whole spectrum, only the interesting bands are necessary for the estimation.

These principles have already been applied to several problems in gas research, notably with regard to the distribution of nickel in catalytic masses for cracking; for their optimum utilisation it is necessary to know whether these catalysers still retain their properties after partial abrasion, which led us to find out whether the nickel remained uniformly distributed over the masse.

Principle of the Test

A preliminary examination shows that the 'support' of the catalyst was silica, alumina, and magnesia. The catalytic masse behaves as a non-conductor which excludes exploration, point by point, of a section taken on the commercial form (ball, cylinder, etc.); it is therefore necessary to work on powdered samples from different zones in the piece.



These samples are obtained by a grinder, introducing a little silicon, or a fine file, introducing a little iron; but in either case this addition of an alien element is of no

importance, since the spectra are already highly charged with bands of silicon and iron.

For example, if the catalyst is in the form of a hollow cylinder (Fig. 2), slices of comparable thickness, a, b, c, d, e, f, are cut after the removal of the parts H1 and H2. The homogeneity of Ni content can thus be controlled, in thickness, as for example slices a and c, and at a given depth, as for example slices b and e.

As the nature of the original support requires working on a powdered sample, the powder is covered in an inert support such as graphite which permits the preparation of pellets of small dimensions to obtain a good reproducibility of operating conditions, to attenuate in large measure the too intense rays of the principal elements, and to introduce as may be necessary, an appropriate internal standard.

Operation

1. *Preparation of sample.* The following mixture was made up:

1 part powdered catalyst.
9 parts pure oxide of copper, quality Merck.
20 „ powdered pure graphite, Carbone Lorraine quality 208.

After standing for about 20 minutes to secure homogeneity, pellets 6 mm. dia. by 2 mm. thick were prepared in a suitable machine.

2. *Couples of homologous rays*—meaning a combination of one ray of the element to be determined and one of the internal standard, in this case, nickel and copper respectively.

In a preliminary study 4 couples were selected

I 3,050.8 Ni, 3,036.1 Cμ
II 3,050.8 Ni, 3,063.4 Cμ
III 3,054.3 Ni, 3,036.1 Cμ
IV 3,054.3 Ni, 3,063.4 Cμ.

As it was desired to study the distribution of Ni, calculation was made of the value of the ratio $\triangle$ Ni/ $\triangle$ Cμ from the readings of the micro-density meter which give the transparency of ray, the inverse of its opacity.

3. *Electrodes.* These are rods of pure graphite (Carbone Lorraine, quality 208) 7 mm. dia. disposed vertically.

The pellet is placed in the crater of the anode, the cathode forming a cone of 120°.

4. *Obtaining the spectra.*

Excitation—Interrupted arc, 50 periods, intensity 4A. Exposure—1.30 minutes, after 30 seconds burning. Width of spectroscope slit—2μ.

Results

This method was applied to the study of the distribution of nickel in a commercial catalyser supplied in the form of hollow cylinders.

A graph, included with the original paper for the values of $\triangle$ Ni and $\triangle$ Cu, and the values of $\triangle$ Ni/$\triangle$ Cu for couples I and III, plotted for a series of samples taken in the bulk of the catalyser, shows a very satisfactory constancy of the ratio $\triangle$ Ni/$\triangle$ Cu, which in turn indicates a homogeneous distribution of the Ni throughout the catalyser investigated.

Dust Extraction from Gas Grid Mains

DUST deposits in gas grid mains have to be extracted at regular intervals without creating a nuisance or blocking the traffic. Water traps in the mains, which are not used for their original purpose because the grid gas is dry, are used as draw-off points, and the Duiesburg gasworks have developed and tested a number of portable dust extractor sets which were specially designed for this purpose. These designs had to meet the following conditions: (1) No possibility of sparks, (2) no accumulation of air/gas mixture, (3) flameproof container, (4) high gas velocity to ensure dust entrainment, and (5) dust container large enough to last one shift. Extractors with a water seal, but without filters, allowed water droplets to escape through the stack.

A re-design with an additional horse-hair filter restricted the gas flow too much. The third design, shown in the illustration, incorporated both a water seal and two Lessing ring filters. This, though larger and heavier, fulfils all conditions and has been adopted as the best solution. Other experimetal rigs worked on a cyclone principle with or without filter, but these were found to suffer from a number of disadvantages. Still another type was based on a filter bag of perlon of 2-ft. diameter and 10 ft. in length, but, though very light, the electrostatic charges in the filter bag caused a number of fires so that it, too, had to be dropped.

G. Hartmann and H. Jerig. Das Gas-und Wasserfach. Vol. 99. No. 45. November 1, 1958, p. 1169.

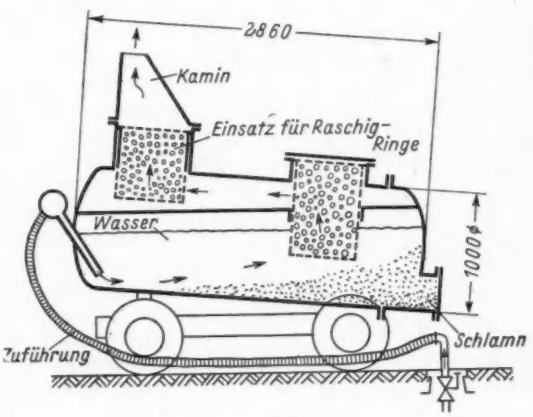


Fig. 1.

Kamin	stack.	Wasser	water.
Schlamm	sludge.	Zuführung	inlet.
2,860	9 ft. 4 in.	1,000	3 ft. 3 in. dia.
Einsatz für Raschig-Ringe		insert for Lessing rings.	